

REMARKS/ARGUMENTS

Favorable reconsideration of this application, in view of the present amendment and in light of the following discussion, is respectfully requested.

Claims 1-12, 17, and 18 are pending. In the present amendment, Claims 1, 3, 11, and 12 are currently amended, Claims 13-16 are canceled without prejudice or disclaimer, and new Claims 17 and 18 are added. Support for the present amendment can be found in the original specification, for example, at page 17, line 23 to page 19, line 1 and in Figures 1 and 2. Thus, it is respectfully submitted that no new matter is added.

In the outstanding Office Action, Claims 13-16 were rejected under 35 U.S.C. §112, first paragraph; Claims 14 and 16 were rejected under 35 U.S.C. §112, second paragraph; Claims 1, 3-5, 7-10, 14, and 16 were rejected under 35 U.S.C. §103(a) as unpatentable over Lefevre et al. (U.S. Patent No. 5,334,004, hereinafter “Lefevre”) in view of Jekat et al. (U.S. Patent No. 5,108,715, hereinafter “Jekat”); Claims 2, 13, and 15 were rejected under 35 U.S.C. §103(a) as unpatentable over Lefevre in view of Jekat, and further in view of Steinetz et al. (U.S. patent No. 5,076,590, hereinafter “Steinetz”); Claim 6 was rejected under 35 U.S.C. §103(a) as unpatentable over Lefevre in view of Jekat and further in view of Maeda et al. (U.S. Patent No. 4,815,418, hereinafter “Maeda”); and Claims 11 and 12 were rejected under 35 U.S.C. §103(a) as unpatentable over Lefevre in view of Jekat, and further in view of Colvin et al. (U.S. Patent No. 2,746,684, hereinafter “Colvin”).

Initially, it is noted that Claims 13-16 are hereby canceled without prejudice or disclaimer. Thus, it is respectfully submitted that the rejections of these claims are moot.

Turning now to the rejections under 35 U.S.C. §103(a), Applicant respectfully requests reconsideration of the rejections and traverses these rejections, as discussed below.

Claim 1 is herein amended, in part, to recite a hot-gas blowing fan comprising a heat resisting impeller cantilevered by a rotating shaft, a bearing attached to the rotating shaft, and

a heat insulating layer disposed between the impeller and the bearing. The heat insulating layer includes a first radial face that faces the impeller and an inner circumferential face that faces the rotating shaft. An exemplary embodiment of such a heat insulating layer can be seen, for example, in Figure 1. The hot-gas blowing fan also comprises a collar positioned between the first radial face of the heat insulating layer and the impeller. Further, the collar is positioned between the inner circumferential face of a heat insulating layer and the rotating shaft. The collar comprises a different material than the heat insulating layer such that the collar prevents the heat insulating layer from contaminating a process gas flowing inside the hot-gas blowing fan.¹ Accordingly, the heat insulating layer can be made of a ceramic fiber, for example, which has high heat-insulating performance. Thus, the thermal loss of the fuel cell system can be reduced. It is respectfully submitted that the cited references do not disclose or suggest every feature recited in amended Claim 1.

Lefevre describes a compressor for processing a flow of dangerous gas, including a rotor 14 mounted on an end of a rotary shaft 20, and that the shaft is supported by bearings 24.² Additionally, Lefevre describes a rotor housing surrounding the shaft 10 and having wet mechanical seals 42, 44 positioned between the rotor 14 and bearings 24.³ The Office Action, in section 11 on page 4, equates the wet mechanical seals 42, 44 described in Lefevre to the claimed collar. Additionally, in section 11 on page 4 of the Office Action, it is acknowledged that Lefevre does not teach that the cooling portion includes a cooling fluid which does not contact the shaft and bearings, but instead relies on Jekat to cure this deficiency of Lefevre.

However, it is respectfully submitted that the cited combination of Lefevre in view of Jekat does not disclose or suggest “a collar positioned between the first radial face of the heat insulating layer and the impeller and positioned between the inner circumferential face of the

¹ See the original specification, for example, at page 17, line 23 to page 18, line 23.

² See Lefevre, at column 3, lines 11-13 and 24-27 and in Figure 1.

³ See Lefevre, at column 3, lines 28-37 and in Figure 1.

heat insulating layer and the rotating shaft, wherein the collar comprises a different material than the heat insulating layer such that the collar prevents the heat insulating layer from contaminating a process gas flowing inside the hot-gas blowing fan,” as recited in amended Claim 1.

Instead, as can be seen in Figure 1 of Lefevre and Figure 1 of Jekat, as annotated by arrows below, the heat insulating layers of these references that face the respective impellers do not have any collar positioned between the heat insulating layer and the impellers.

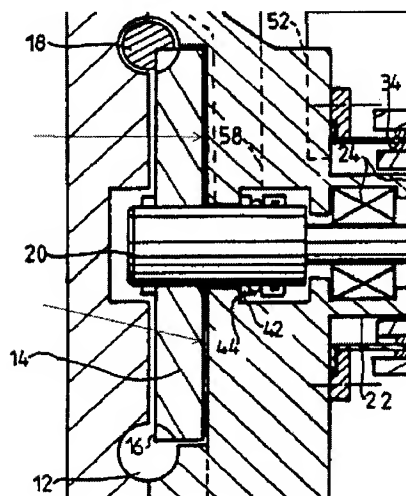


Fig. 1 of Lefevre

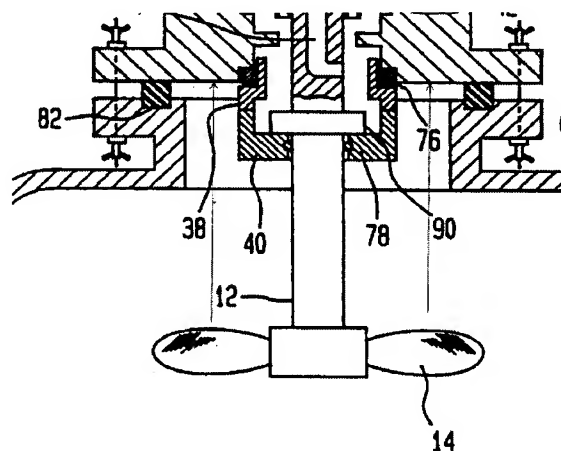


Fig. 1 of Jekat

Accordingly, any material contaminants from the heat insulating layers would contaminate a process gas flowing inside the hot-gas blowing fan. Further, as can be seen in Figure 1 of Lefevre, the wet mechanical seals 42, 44 would not prevent material from the radial face of a heat insulating layer of Lefevre from contaminating the process gas within the hot-gas blowing fan. Therefore, Lefevre as modified by Jekat does not disclose or suggest the claimed collar.

Thus, it is respectfully submitted that the cited combination of Lefevre in view of Jekat does not disclose or suggest every feature recited in amended Claim 1. Therefore, it is respectfully requested that the rejection of Claim 1, and all claims dependent thereon, as unpatentable over Lefevre in view of Jekat be withdrawn.

Amended Claim 3, while directed to an alternative embodiment, recites a collar similar to that discussed above with respect to Claim 1. Thus, it is respectfully submitted that, for at least the reasons discussed above with respect to Claim 1, the combination of Lefevre and Jekat does not disclose or suggest every feature recited in amended Claim 3. Therefore, it is respectfully requested that the rejection of Claim 3, and all claims dependent thereon, as unpatentable over Lefevre in view of Jekat be withdrawn.

Turning now to the remaining rejections in the Office Action, Applicant respectfully submits that none of the remaining secondary references (Steinetz, Maeda, and Colvin) cure the deficiencies noted above with respect to the combination of Lefevre in view of Jekat. Therefore, for at least the reasons discussed above, it is respectfully submitted that Claims 2, 6, 11, and 12 also patentably define over all of the cited references. Thus, it is respectfully requested that the rejections of these claims be withdrawn.

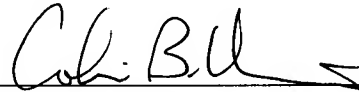
New Claims 17 and 18 are added by the present amendment. Support for new Claims 17 and 18 can be found in the original specification, for example, at page 18, lines 6-7 and at page 18, line 24 to page 19, line 1. Thus, it is respectfully submitted that no new matter is added.

New Claims 17 and 18 are dependent on Claims 1 and 3, and thus are believed to be patentable for at least the reasons discussed above with respect to Claims 1 and 3. Further, new Claims 17 and 18 recite that the heat insulating layer and the collar are comprised of different materials. In view of the above discussion of the cited references, it is respectfully submitted that none of the cited combinations disclose or suggest both a heat insulating layer and a collar that are comprised of different materials.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application and the present application is believed to be in condition for formal allowance. A notice of allowance is earnestly solicited.

Respectfully submitted,

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A handwritten signature in black ink, appearing to read "Col. B. U.", is written over a horizontal line.

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